AL.2.2002-170

Mathematics 5

Module 5

Home Instructor's Guide
and Assignment Booklet 5B

Learning
Technologies
Branch

Alberta
LEARNING

Mathematics 5
Module 5: Data Analysis
Home Instructor's Guide and Assignment Booklet 5B
Learning Technologies Branch
ISBN 0-7741-2040-1

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	

You may find the following Internet sites useful:

- Alberta Learning, **http://www.learning.gov.ab.ca**
- Learning Technologies Branch, **http://www.learning.gov.ab.ca/ltb**
- Learning Resources Centre, **http://www.lrc.learning.gov.ab.ca**

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

Lesson 3: Collecting Data from Experiments

Overview

In Lesson 3 the student conducts experiments to answer questions. The student collects data and then displays it appropriately to answer the questions being investigated.

Special Requirements

You may collect the following materials for your student to use in this lesson:

- 3 cardboard tubes:
  - 28 cm long and 4 cm wide (Use a regular paper towel roll.)
  - 12.7 cm long and 4 cm wide (Cut down a regular paper towel roll.)
  - 12.7 cm long and 2.5 cm wide (Cut down a regular paper towel roll, slit it lengthwise, make the diameter smaller, and tape it.)
- metre-stick
- tape
- ruler
- coins: a penny, a nickel, a quarter, a loonie, and a toonie
- eyedropper
- glass of water
- paper towels
- 2 metre-sticks
- regular paper towel roll
- 10 base ten flats
- a small marble
- a large marble

Sharing Time

Students are asked to discuss what they are learning once in Lesson 3—at the end of Activity 2. This Sharing Time exercise is open-ended, so answers will vary. However, a sample response is given.

Activity 2 Sharing Time

When the height of the tube was raised, the marbles rolled farther. The distances increased by equal amounts when the end of the tube was raised by equal amounts.

The heavier marbles rolled farther than the lighter marbles for the same height of the tube.

These results are what you expect to happen.

Home Instructor's and Student's Comments:

STUDENT FILE NUMBER
(if label is missing or incorrect)

Date Submitted:

Apply Module Label Here

Name

Address

Postal Code

Please verify that preprinted label is for correct course and module.

FOR SCHOOL USE ONLY

Assigned Teacher:

Date Assignment Received:

Grading:

Teacher's Comments

Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

INSTRUCTIONS FOR SENDING IN THIS
DISTANCE LEARNING ASSIGNMENT BOOKLET

When you register for distance learning courses, you are expected to send in Assignment Booklets for corrections regularly. Try to send each Assignment Booklet as soon as you have completed it. Before sending your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

MAILING

1. Postage Regulations

Do **not** enclose letters with Assignment Booklets.

Send all letters in a separate envelope.

2. Postage Rates

Take your Assignment Booklet to the post office and have it weighed. Attach enough postage and seal the envelope. Assignment Booklets will travel faster if correct postage is used and if they are in large envelopes that are no more than two centimetres thick.

FAXING

1. Assignment Booklets may be faxed. Contact your teacher for the fax number.

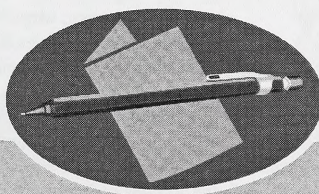2. All faxing costs are the responsibility of the sender.

E-MAILING

Assignment Booklets may be e-mailed. Contact your teacher for the e-mail address.

Mathematics 5

Module 5

Data Analysis

Assignment Booklet 5B

FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Lesson 3 Assignment	30	
Number in the News	10	
	40	

Teacher's Comments

Mathematics 5
Module 5: Data Analysis
Assignment Booklet 5B
Lesson 3 Assignment and Numbers in the News
Learning Technologies Branch

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	
General Public	
Other	

You may find the following Internet sites useful:

- Alberta Learning, **http://www.learning.gov.ab.ca**
- Learning Technologies Branch, **http://www.learning.gov.ab.ca/ltb**
- Learning Resources Centre, **http://www.lrc.learning.gov.ab.ca**

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

ASSIGNMENT BOOKLET 5B
MATHEMATICS 5—MODULE 5: DATA ANALYSIS

Your mark on this module will be determined by how well you do your assignments in the Assignment Booklets.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate lessons.
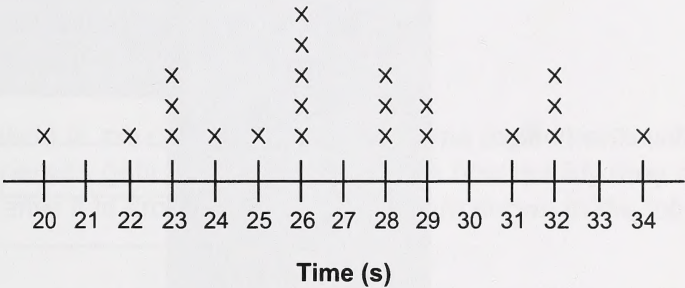
There is one lesson assignment and a Numbers in the News project in this Assignment Booklet. The total value of the lesson assignment is 30 marks. The Numbers in the News projects is worth 10 marks. The value of each assignment is stated in the left margin.

Be sure to proofread each assignment carefully.

(30) **Lesson 3 Assignment: Collecting Data from Experiments**

A group of children timed how long it took each person to count aloud to 100 as quickly as he or she could. The results are shown in the following tables. Use the tables to answer questions 1 to 5.

```
                              X
                              X
                 X            X     X                 X
                 X            X     X  X              X
         X       X  X  X  X   X      X  X        X  X        X
      +--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
      20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
```

Time (s)

Range of Time	Number of People
20–24	6
25–29	11
30–34	5

(2)   **1.** What is the same about each representation of the data?

_____

_____

_____

(2)   **2.** What is different about each representation of the data?

_____

_____

_____

(2)   **3.** Does one display reveal the data better than the other? Explain.

_____

_____

_____

(5)   **4.** Reorganize the same data using the following ranges of time.

| Range of Time (s)	Number of People
20–22	
23–25	
26–28	
29–31	
32–34	

③

5. Make a bar graph using the ranges in question 4. Label your work so that others can read your graph quickly and accurately.


Tina, Rex, and Liz are conducting reaction time experiments with a metre-stick. Each person gets three chances to see how quickly they catch the metre-stick after it is dropped. Their results are shown in the following table.

Trial Number	Distance the Metre-stick Dropped (cm)		
	Tina	Rex	Liz
1	50	17	20
2	40	26	22
3	15	23	59

⑥   **6.** Make broken-line graphs to show how each person's reaction times changed over the three trials.

Distance the Metre-stick Dropped (cm)
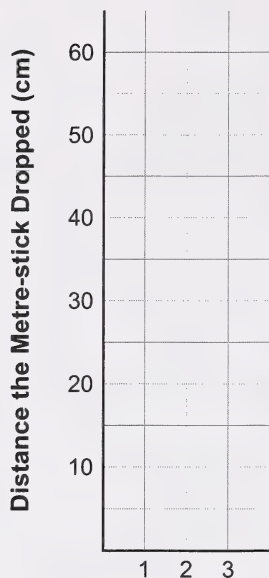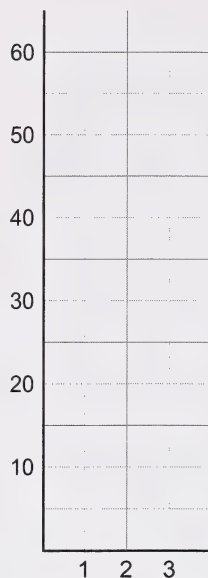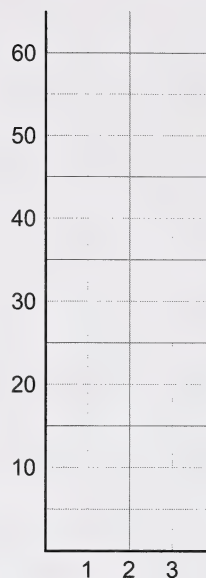
Tina   Rex   Liz

Trials

②   **7. a.** Who has the best reaction time if the lowest number of centimetres on any trial wins?

_____

_____

②   **b.** Who has the best reaction time if the high and low distances for each person are eliminated?

_____

_____

②   **c.** Who has the best reaction time if the average distance for each person is calculated by adding their numbers and dividing by 3?

_____

_____

②

d. Who has the best reaction time if the single lowest distance over the three trials wins?

_____

_____

②

8. Read the claim that each person made, based on the results of the reaction time experiment.

- Tina claimed that by the end of the experiment, she was the quickest.

- Liz claimed that by not counting the high and the low distances, you are left with what would usually happen. She also claimed that she was the fastest.

- Rex claimed that his overall performance was most consistent.

Explain how the claims made by the different people show why you have to be so careful when interpreting statistics.

_____

_____

_____

_____

_____

_____

_____

(10)

Numbers in the News

Go through the scavenger hunt list for Module 5 to make sure you have clipped at least one example for each question. Ask your home instructor to check the samples you found. Choose the sample you wish to use, and label each one with the scavenger hunt number it matches. Organize your samples and put them together with any other information required. Submit your project with this Assignment Booklet.

Ask yourself the following questions:

- Is my Numbers in the News project complete? (Have I included all my samples?)

- Do my samples show the ideas clearly? (Are my examples appropriate?)

- Did I take care to be neat when organizing and labelling my work?